1.09 Financial Statement Analysis

Key Ratios

When users of financial statements examine them, they often compute certain key ratios to evaluate the company's performance. There are hundreds of different ratios that can be computed from a set of financial statements, and it isn't realistic to attempt to learn more than a handful. However, there are six that are tested regularly that we will discuss.

A couple of extremely common ratios used to determine the **ability of the company to cover its upcoming bills** are:

- Current ratio
- Quick (acid test) ratio

The current ratio is simply *current assets divided by current liabilities* at the balance sheet date. The quick ratio is *quick assets divided by current liabilities*. Quick assets are those that can be converted into cash rapidly, and normally include:

- Cash
- Marketable securities
- Accounts receivable

Other current assets, such as inventory and prepaid expenses, are not considered quick assets because they are difficult to convert to cash without substantial effort.

For example, assume a client had the following assets and liabilities at the balance sheet date:

Cash	100
Accounts receivable	50
Inventories	500
Trading securities	150
Machinery & equipment	180
Total assets	980
Accounts payable	60
Current portion of note payable	140
Long-term portion of note payable	400
Total liabilities	600

- Current assets = 100 + 50 + 500 + 150 = 800
- Quick assets = 100 + 50 + 150 = 300
- Current liabilities = 60 + 140 = 200
- Current ratio = 800 / 200 = 4 to 1
- Quick ratio = 300 / 200 = 1.5 to 1

Two ratios are used to measure the **efficient use of inventory:**

- Inventory turnover ratio
- Number of days' sales in average inventory

Inventory turnover ratio measures the number *of times the average inventory is sold. The formula is cost of* sales divided by average inventory. **Number of days' sales in average inventory** is a different way to measure the same thing. The formula is *average inventory divided by daily cost of sales.*

To complicate the question, the exam often doesn't provide cost of sales, and it must be computed using the standard formula:

Cost of sales = Beginning inventory + Purchases – Ending inventory

Also, it may not provide average inventory, which is computed as follows:

(Beginning Inventory + Ending Inventory) / 2

For example, assume the following facts are available:

Inventory, 1/1/X1	200
Inventory, 12/31/X1	300
Sales in 20X1	900
Purchases in 20X1	600
Working days in 20X1	250

- Cost of sales = 200 + 600 – 300 = 500
- Daily cost of sales = Cost of sales / Working days per year = 500 / 250 = 2
- Average inventory = (200 + 300) / 2 = 250
- Inventory turnover ratio = 500 / 250 = 2 times
- Number of days' sales in average inventory = 250 / 2 = 125 days

The final set of regularly-tested ratios measures the **efficiency of receivables**:

- Receivables turnover ratio
- Number of days' sales in average receivables

The **receivables turnover ratio** is *credit sales divided by average receivables*, and the **number of days' sales in average receivables** is *average receivables divided by daily credit sal*es. The questions are usually straightforward.

For example, assume the following facts apply:

Accounts receivable, 1/1/X1	100
Accounts receivable, 12/31/X1	200
Cash sales in 20X1	400
Credit sales in 20X1	750
Working days in 20X1	250

- Average receivables = (Beginning A/R + Ending A/R) / 2 = (100 + 200) / 2 = 150
- Daily credit sales = Credit sales / Working days per year = 750 / 250 = 3
- Receivables turnover ratio = 750 / 150 = 5 times
- Number of days' sales in average receivables = 150 / 3 = 50 days

It is important to understand the ratios and their Purpose or Use.

Ratio	Formula	Purpose or Use
Liquidity – Measures of the company's short-term ability to pay its maturing obligations.		
Working Capital	Current assets – Current liabilities	Measures ability to meet current expenses
Current ratio	Current assets / Current liabilities	Measures short-term debt-paying ability
Quick or acid-test ratio	Cash, marketable securities, & receivables (net) / Current liabilities	Measures immediate short-term liquidity
Current cash debt coverage ratio	Net cash provided by operating activities / Average current liabilities	Measures a company's ability to pay off its current liabilities in a given year from its operations
Defensive interval ratio	Cash, marketable securities, & receivables (net) / Average daily expenditures	Measures the length of time a company can continue to pay its bills with its existing liquid assets.

Ratio	Formula	Purpose or Use
Activity – Measures how effectively the company uses its assets		
Receivables turnover	Net credit sales / Average trade receivables (net)	Measures liquidity of receivables
# days' sales in average receivables	365* / Receivables Turnover	Measures number of days required to collect receivables
Inventory turnover	Cost of goods sold / Average inventory	Measures liquidity of inventory
# days' supply in average inventory	= 365* / Inventory Turnover or = Average (ending) inventory / Average daily cost of goods sold	Measures number of days required to sell inventory
Asset turnover	Net sales / Average total assets	Measures how efficiently assets are used to generate sales
Length of Operating Cycle	# days' sales in average receivables + # days' supply in average inventory	Measures operating efficiency
Cash conversion cycle	Days sales in A/R + Days in Inventory – Days of payables outstanding	Measures operating efficiency
Days of payables outstanding	Ending accounts payable / Cost of goods sold / 365*	Measures how efficiently payables are paid

**Candidates should use 365 days unless told to assume 360 days.*

Ratio	Formula	Purpose or Use
Profitability – Measures of the degree of success or failure of a given company or division for a given period of time.		
Profit margin on sales	Net income / Net sales	Measures net income generated by each dollar of sales
Rate of return on assets	Net income / Average total assets	Measures overall profitability of assets
Return on total assets	Net income + Interest Expense, net of tax / Average total assets	Measures overall profitability before interest and taxes
Rate of return on common stock equity (Return on equity)	(Net income – preferred dividends) / Average common stockholders' equity	Measures profitability of owners' investment
Earnings per share	(Net income – preferred dividends) / Weighted shares outstanding	Measures net income earned on each share of common stock
Price-earnings ratio	Market price of stock / Earnings per share	Measures the ratio of the market price per share to earnings per share
Dividend payout ratio	Cash dividends / Net income	Measures % of earnings distributed in the form of cash dividends
Coverage – Measures of the degree of protection for long-term creditors and investors.		
Debt to equity	Total debt / Stockholders' equity	Shows creditors the corporation's ability to sustain losses
Debt to total assets	Total debt / Total assets	Measures the percentage of total assets provided by creditors
Times interest earned	Income before interest expense & taxes / Interest expense	Measures ability to meet interest payments as they come due
Cash debt coverage ratio	Net cash provided by operating activities / Average total liabilities	Measures a company's ability to repay its total liabilities in a given year from its operations
Book value per share	Common stockholders' equity / Outstanding shares	Measures the amount each share would receive if the company were liquidated at the amounts reported on the balance sheet